AMESP200U-277NZ

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Enclosed

The AMESP200U-277NZ series is an efficient, enclosed, fan less, ultra-narrow, and semi-potted 200W AC/DC power supply module. It offers a wide commercial input voltage range of 90-305VAC, output voltage ranges from 3.3-55V, low power consumption, high efficiency, high reliability, and safer isolation.

This new series offers great operating temperatures, from -30°C to +70°C with full power up to 50°C and features an isolation of 3750VAC with improved reliability and system safety. Furthermore, a high MTBF of 188,400h, output short circuit protection (OSCP), output over-current protection (OCP), output over-voltage protection (OVP), and over temperature protection (OTP) come standard with the series.

The AMESP200U-277NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

Features

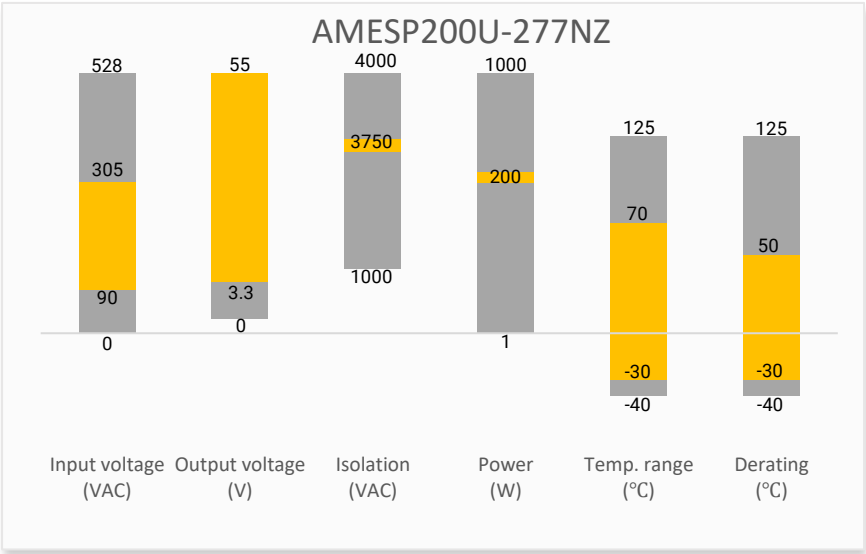
- Universal Input: 90 - 305VAC/127 - 430VDC
- Operating Temp: -30 °C to +70 °C
- PFC>0.93
- High isolation voltage: Up to 3750VAC
- Low ripple & noise, 360mV(p-p) typ.
- Output short circuit, over-current, over-voltage and over temperature protection
- Regulated Output
- Active power factor correction
- DC OK active signal and redundant function (option)

RoHS

3yr Warranty

With PFC

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Power Grid

Industrial

Telecom

Instrumentation

Models & Specifications

Single Output								
Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Max Output Wattage (W)	Output Voltage (V)	Output Voltage Adjustable Range (V)	Output Current max (A)	Maximum capacitive load (µF)	Average Efficiency (%)
AMESP200U-3S277NZ-P	90-305/50-60	127-430	132	3.3	3.2-3.5	40	10000	88
AMESP200U-4S277NZ-P	90-305/50-60	127-430	168	4.2	3.6-4.4	40	10000	88
AMESP200U-5S277NZ-P	90-305/50-60	127-430	200	5	4.5-5.5	40	10000	89
AMESP200U-12S277NZ-P	90-305/50-60	127-430	200.4	12	11.4-12.6	16.7	8000	90
AMESP200U-15S277NZ-P	90-305/50-60	127-430	201	15	14.3-15.8	13.4	7000	91
AMESP200U-24S277NZ-P	90-305/50-60	127-430	201.6	24	22.8-25.2	8.4	5000	91
AMESP200U-36S277NZ-P	90-305/50-60	127-430	201.6	36	34.2-37.8	5.6	3000	92
AMESP200U-48S277NZ-P	90-305/50-60	127-430	201.6	48	45.6-50.4	4.2	2000	92
AMESP200U-55S277NZ-P	90-305/50-60	127-430	198	55	45-58	3.6	1000	93

Note: The "-P" suffix indicates a terminal protective cover and conformal coating (ex. AMESP200U-12S277NZ-P). For optional built-in DC ok active signal and redundant function, add "R" after the "-P" (ex. AMESP200U-12S277NZ-PR is the built in DC ok signal and redundant function version with terminal protective cover and with conformal coating).

Input Specifications				
Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC	2.6		A
	230VAC	1.3		A
Inrush current	115VAC, cold start	40		A
	230VAC, cold start	80		A
Power factor	115VAC, Full load	0.98		
	230VAC, Full load	0.94		
Leakage current	240VAC		0.75	mA

Output Specifications				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	Full load, 3.3V, 4.2V, 5V output	±2		%
	Full load, others output	±1		%
Line regulation	Full load, 3.3V, 4.2V, 5V output	±0.5		%
	Full load, others output	±0.3		%
Load regulation	0-100% load, 3.3V, 4.2V, 5V output	±1		%
	0-100% load, others output	±0.5		%
Ripple & Noise*	3.3V, 4.2V output		150	mV p-p
	5V output		200	mV p-p
	12V, 15V, 24V, 36V output		240	mV p-p
	48V output		300	mV p-p
	55V output		360	mV p-p
Hold up time	115VAC, full load	10		ms
	230VAC, full load	10		ms

*** Ripple and Noise are measured at 20MHz bandwidth with a 47µF electrolytic capacitor and a 0.1µF ceramic capacitor. Please refer to the application note for specific details.**

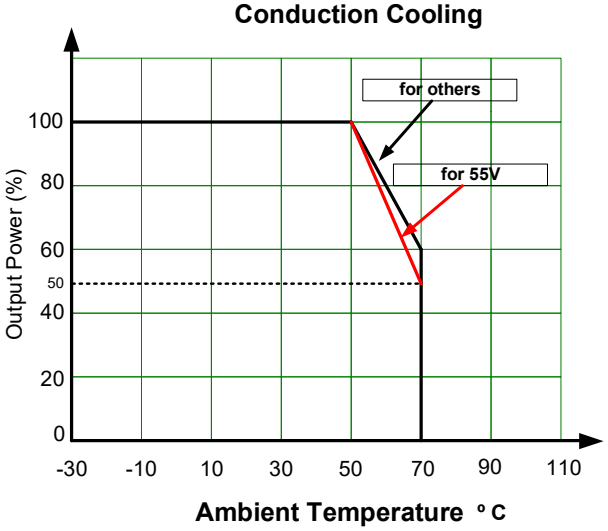
Isolation Specifications				
Parameters	**Conditions**	**Typical**	**Rated**	**Units**
Tested I/O voltage	60 sec		3750	VAC
Tested Input to GND voltage	60 sec		2000	VAC
Tested Output to GND voltage	60 sec		1250	VAC
Resistance (I/O, I/O to GND) *	500VDC		100	MΩ
* Tested under 25±5°C ambient temperature with relative humidity <95% and no condensation.				

General Specifications				
Parameters	**Conditions**	**Typical**	**Maximum**	**Units**
Safety class	Class I			
Over voltage category	OVC III / According to EN62368-1; altitude up to 2000 meters			
Over Current protection	Hiccup, Auto recovery	≥ 110	140	% of Iout
Over voltage protection	Shut-down, Manual recovery	≥ 115	135	% of Vout
Over temperature protection	Shut down, recover automatically after the temperature goes down.			
Short circuit protection	Hiccup, Auto recovery			
Operating temperature	See derating graph	-30 to +70		°C
Storage temperature		-40 to +85		°C
Power derating	50 °C to 70 °C, Conduction, 55V	2.5		% / °C
	50 °C to 70 °C, Conduction, others	2		% / °C
	50 °C to 70 °C, Convection, 110VAC, 3.3V ~ 5V	1		% / °C
	50 °C to 70 °C, Convection, 100VAC, 55V	2.5		% / °C
	50 °C to 70 °C, Convection, 100VAC, others	2		% / °C
	50 °C to 70 °C, Convection, 230VAC, 3.3V ~ 5V	2		% / °C
	50 °C to 70 °C, Convection, 230VAC, 55V	3.5		% / °C
	50 °C to 70 °C, Convection, 230VAC, others	3		% / °C
	90VAC ~ 110VAC@60Hz	1.25		% / VAC
Temperature coefficient	0 ~ 50 °C	±0.03		% / °C
Cooling	Free air convection			
Humidity	Non-condensing, Storage	≥ 10	95	% RH
	Non-condensing, Operating	≥ 20	95	% RH
Case material	Metal			
Weight		500		g
Dimensions (L x W x H)	7.68 x 2.16 x 1.02inch (195.0 x 54.8 x 26.0mm)			
Vibration	10 ~ 500Hz, 5G 10min / 1cycle, 60min. Each along X, Y, Z axes			
MTBF	> 188 400 hrs MIL-HDBK-217(25°C)			
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.				

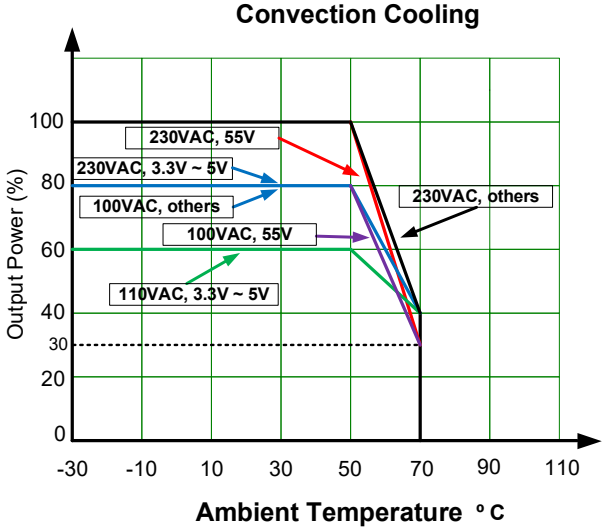
Safety Specifications		
Parameters		
Standards	Over voltage category	Design to meet III; According to EN62368-1
	Information technology Equipment	Design to meet EN62368-1, UL62368-1, BS EN62368-1, EN60335-1, EN61558-1
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Harmonic current	IEC 61000-3-2
	Voltage flicker	IEC 61000-3-3
	Electrostatic Discharge Immunity	IEC 61000-4-2
	RF, Electromagnetic Field Immunity	IEC 61000-4-3
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4
	Surge Immunity	IEC 61000-4-5
	RF, Conducted Disturbance Immunity	IEC 61000-4-6
	Power-frequency Magnetic Field	IEC 61000-4-8
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11

Derating

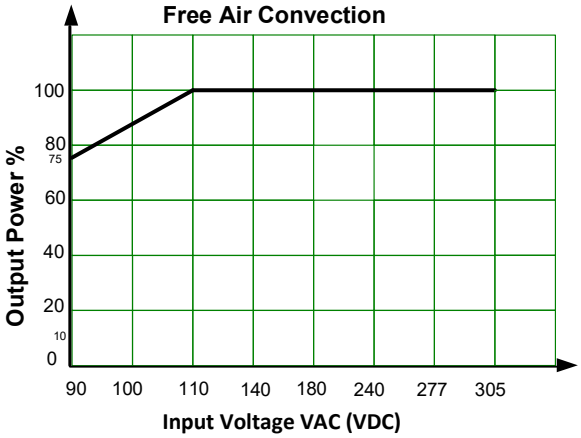
Conduction Cooling

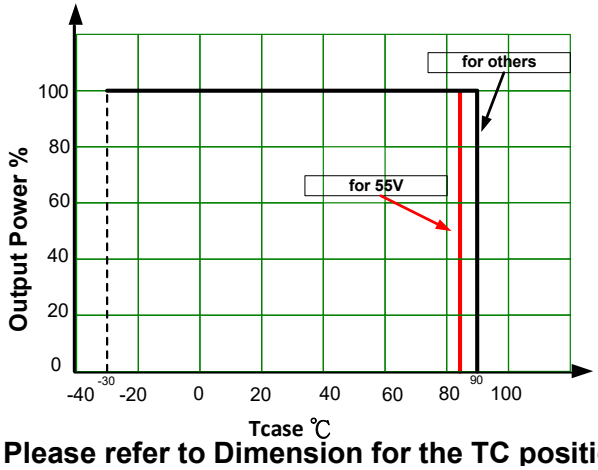


Convection Cooling



Free Air Convection

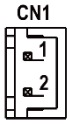




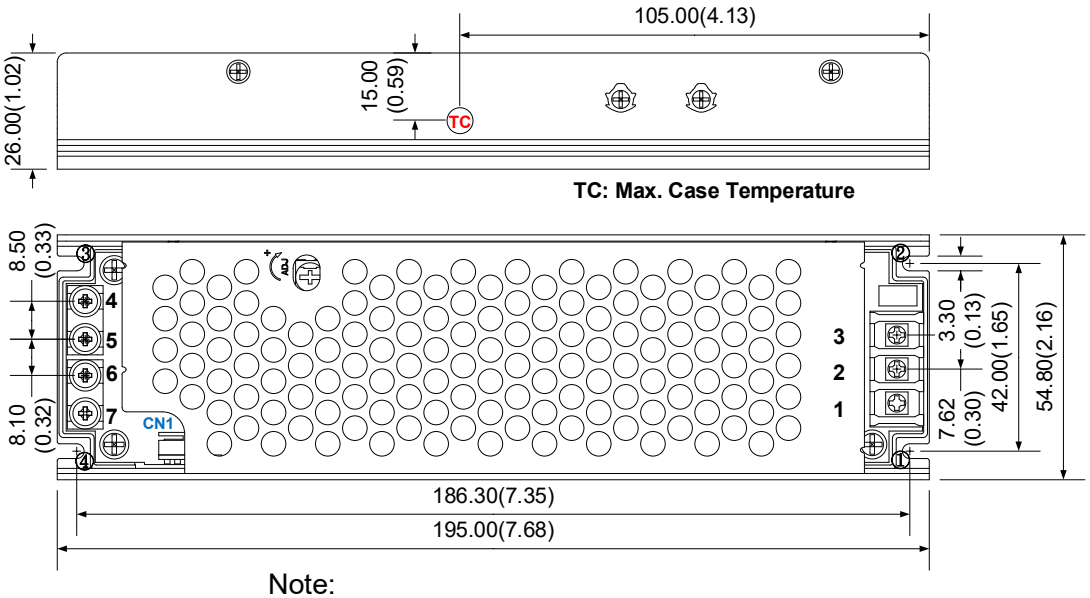
Please refer to Dimension for the TC position.

Dimensions

Pin Output Specifications	
Pin	Single
1	PE GND
2	AC Input (N)
3	AC Input (L)
4	+V Output
5	+V Output
6	-V Output
7	-V Output

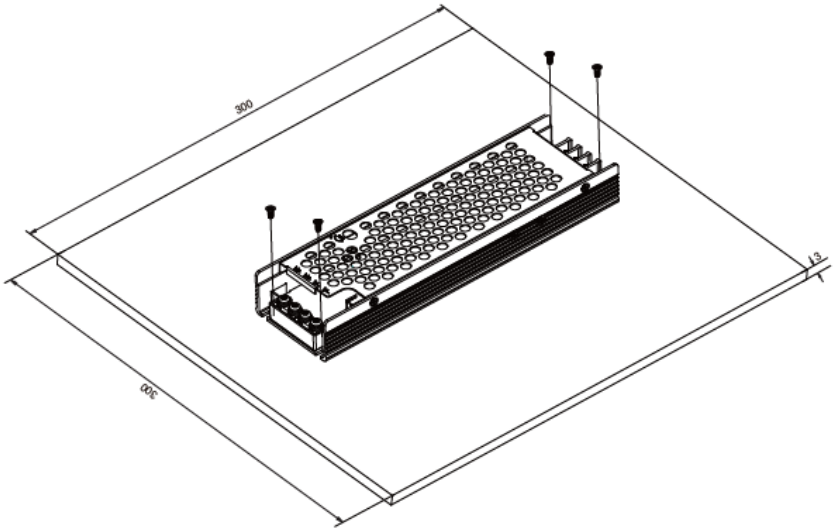


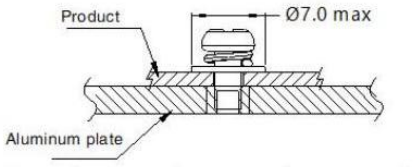
CN1 (DC OK connector) DL20001-AWD or equivalent	
Pin	Single
1	$-V_{DC\ OK}$
2	$+V_{DC\ OK}$



Note:
Unit: mm(inch)
General tolerance: ±1.0(0.04)

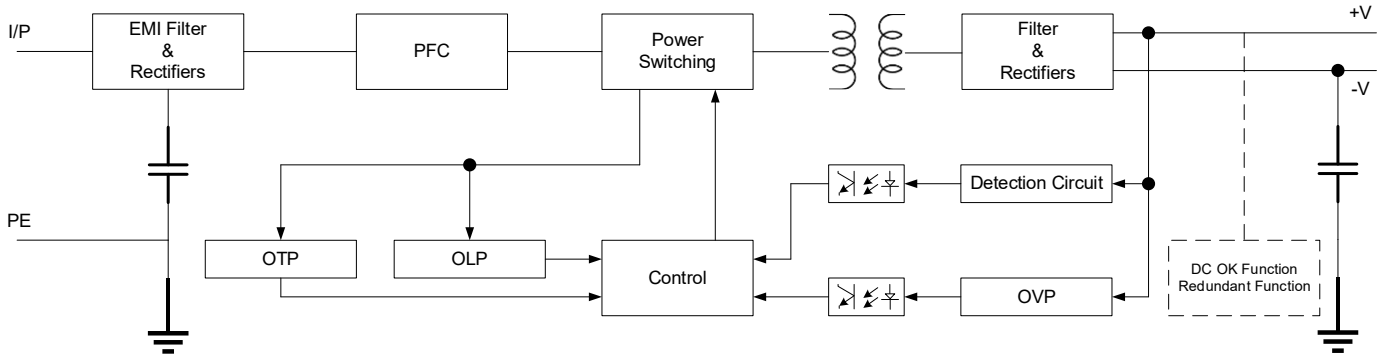
Note:
1.Operate with additional aluminum plate
In order to meet the" Derating Curve" and the "Static Characteristics", the series model must be installed onto an aluminum plate (or the cabinet of the same size) on the bottom. The size of the suggested aluminum plate is 300mm x 300mm. And for optimizing thermal performance, the aluminum plate must have an even and smooth surface (or coated with thermal grease), and the series model must be firmly mounted at the center of the aluminum plate.
2. It is suggested to install the product with M3 combination screws, and the product must be firmly installed at the center of the aluminum plate.





Position	Screw Spec.	Torque(max)
① – ④	M3	0.4N ▪ m

Block Diagram



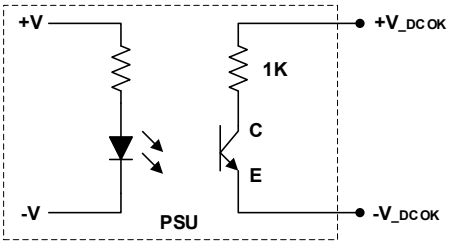
Function

DC OK Signal (Option)	Contact rating (max.): 15VDC/10mA resistive load
Redundant (Option)	For parallel applications, if one power supply unit (PSU) fails, the other will automatically take over. This ensures continuous operation, prevents system crashes, and enhances overall system reliability.

Function Manual

1. DC OK Signal

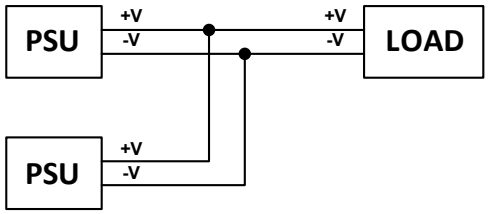
The DC OK signal is an open-collector output, typically implemented using an optocoupler inside the power supply. It indicates the output status of the power supply, as shown below.



Optocoupler C-E Pin Conduction	PSU turns on	DC OK
Optocoupler C-E Pin Open	PSU turns off	DC Fail
Optocoupler Rating (Max.)	15VDC/10mA resistive load	

2. Redundant Function

a. AMESP200U-XXS277NZ-PR features a built-in redundancy function and supports parallel connection of two units.
b. During parallel operation, the total load should not exceed the rated power of a single power supply unit (PSU).



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